

AN IMPLANTABLE INTRACRANIAL PHOTO APPLICATOR FOR LONG TERM
FRACTIONATED PHOTODYNAMIC AND RADIATION THERAPY IN THE BRAIN AND
METHOD OF USING THE SAME

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Abstract of the Disclosure

An inflatable balloon is disposed into a body cavity and inflated to expand into the body cavity. A subcutaneously implanted, resealable catheter is coupled to the inflatable balloon. The resealable catheter provides repetitive access for an optical fiber disposed through a first lumen to illuminate the inner surface and for a radiation source disposed on the distal tip of a wire to provide repetitive long term, fractionated photodynamic and radiation therapy to tissues adjacent to the inner surface. A light diffusing fluid is disposed in the inflatable balloon. The catheter has a self-healing membrane coupled to and closing its proximal end. An insert is coupled to the proximal end and to the first lumen in the subcutaneous, resealable catheter. The insert is funnel shaped, but not necessarily concentric, narrowing down to where the insert is coupled to the lumen to ease in disposition of the insert into the patient and to facilitate introduction of the optical fiber therethrough without damage to the optical fiber. The insert can be disposed into or placed on top and supported only by the bony cranium of the patient and is supported by the cranium so that forces applied to the insert are prevented from being transmitted to underlying brain tissue.

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